

## **REMARKS**

Claims 24, 25, 28-35 and 44 are pending in this application. A substitute set of formal drawings for Figs. 1-3 is attached. These drawings are submitted to more clearly show the breaks 47 which were present (albeit somewhat difficult to see) in the device that is the subject of the photographs that served as the original drawings. Support for the breaks 47 in the drawings can also be found in, for example, paragraph [0055] of the specification, as published. Entry of the amendments is proper under 37 C.F.R. §1.116(b)(3) since the amendments clarify features disclosed in the specification. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

### **I. June 8, 2009 Telephonic Interview**

The Applicant thanks Examiner Mai for the courtesies extended to the Applicant's representative during the June 8, 2009, telephonic interview. Applicant's representative contacted the Examiner to discuss the status of the replacement drawings submitted along with the December 30, 2008, Response. Specifically, the Applicant's representative noted that the "Office Action Summary" does not indicate whether the drawings were accepted. The Examiner indicated that the drawings were accepted. Acknowledgement by the Patent Office that the drawings were accepted is respectfully requested.

### **II. Prior Art Rejections under 35 U.S.C. § 103**

Claims 24, 28-35 and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,332,774 to Chikami in view of U.S. Patent No. 4,026,023 to Fisher. Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chikami in view of Fisher and in further view of U.S. Patent No. 5,002,485 to Aagesen. The Applicant respectfully requests reconsideration of these rejections.

#### **A. Independent Claim 24**

Claim 24 recites, *inter alia*, "the arch wire extending from the posterior portions indirectly, generally rearwardly and outwardly relative to the wearer when in situ, to the set of

As shown above, the embodiment of Figure 1 has an arch wire 14 that extends continuously from a left side posterior portion 24 of the base 12 and outwardly to form a bent portion behind a posterior tooth 26 on the left side of the arch 16, forwardly along the outside left side of the arch 16, rightward along the outside front side of the arch 16, rearwardly along the outside right side of the arch 16, and inwardly to form another bent portion behind a posterior tooth 36 on the right side of the arch 16 to a right side posterior portion 22 of the base 12. With respect to claim 24, the wire 14 exits the posterior portions 22, 24 on each side of the base 12 at locations spaced from



As shown above, the embodiment of Figure 1 has an arch wire 14 that extends continuously from a left side posterior portion 24 of the base 12 and outwardly to form a bent portion behind a posterior tooth 26 on the left side of the arch 16, forwardly along the outside left side of the arch 16, rightward along the outside front side of the arch 16, rearwardly along the outside right side of the arch 16, and inwardly to form another bent portion behind a posterior tooth 36 on the right side of the arch 16 to a right side posterior portion 22 of the base 12. With respect to claim 24, the wire 14 exits the posterior portions 22, 24 on each side of the base 12 at locations spaced from

the arch of teeth 16. The wire 14 extends from the posterior portions 22,24 generally rearwardly (arrow A) and outwardly (arrow B) to the set of teeth in bent portions of wire 14 on each side of the base 12 so as to allow flexure of the bent portions of wire between the base and the set of teeth.

The Office Action argues that Chikami discloses an embodiment in Fig. 7 that renders obvious the combination of features recited in claim 24. Chikami describes a retainer wire having a base part 1, a supporting portion 3 composed of metal wires provided in the left and right rear ends of the base part 1, and a holding portion 2. (Fig. 7; col. 1, ll. 55-62; col. 2, ll. 22-25). Chikami further describes a spring portion 2a connecting the holding portion 2 to element 4 and ultimately supporting portion 3 around the outside of the dentition. (Fig. 7; col. 2, ll. 15-16).

Referring to Fig. 7, the Office Action states that Chikami elements 2a are capable of allowing flexure of the wire at the bent portions, allegedly promoting limited movement of the arch wire relative to the base. The alleged bent portions in Chikami, however, are not between the base and the set of teeth, as recited in claim 24. Claim 24 requires bent portions of wire on each side of the base so as to allow flexure of the bent portions of wire between the base and the set of teeth. The claimed configuration is illustrated, for example, in Applicant's Fig. 1 (reproduced above), in which the arch wire 14 extends continuously from a left side posterior portion 24 of the base 12 and outwardly to form the bent portion behind the posterior tooth 26 on the left side of the arch 16, and similarly on the right side. As clearly illustrated in Chikami Fig. 7, spring portions 2a are located on the outside or periphery of the dentition, but not between the teeth and the base. Thus, contrary to the Office Action's position, Chikami does not disclose the claimed bent portion.

Chikami also does not suggest this feature. Chikami discloses a conventional retaining device for retaining teeth in position. Chikami states

the present invention relates to a dentition retaining appliance which is composed of a base part to be stuck closely to the upper or lower surface of the palate and to the root portion of each tooth at the reverse side of a dentition, and a holding means whose end portions are fixed to said base part, and which holds a desired dentition by pressing corrected teeth between said base part and said holding means.

(col. 1, ll. 7-15)(emphasis added). Chikami further states

a model of the lower or upper jaw is made in gypsum, and then a holding portion 2b and a supporting portion 3 are attached onto the said model.

Finally, metal wires are attached to models of the left and right molar teeth to form the supporting portion 3. One end of this wire is also extended at the reverse side of a dentition.

When a holding portion and a supporting portion 3 have been attached to a model of a dentition in such a way, a molten acrylic resin is poured into the model to form a base part 1. When it has been left as it is for several minutes or longer, a retaining appliance in which a saddle-shaped base part 1 has a holding portion 2b and a supporting portion 3 fixed to it can be obtained.

(col. 1, l. 65 - col. 2, l. 10)(emphasis added). The pending claims are directed to a Splint Orthodontic Myofunctional Appliance (SOMA) device, which, among other things, serves to guide teeth via the arch wire 14 during expansion to prevent tipping. Advantageously, by virtue of the arch wire extending in suspended bent portions between the base and the teeth, the claimed device allows movement of the teeth by virtue of the bent portions instilling flexibility in the arch wire. In contrast, retainers, such as disclosed in Chikami, are intended to reduce movement of the teeth, i.e., to retain position of the teeth, and for use after the teeth of the patient have already been moved into line, for example, by way of orthodontic braces. In contrast, the claimed device may be used as a substitute for orthodontic braces, by moving the teeth of the patient via the bent portions of the arch wire, as discussed above.

One of ordinary skill in the would not have been motivated to modify Chikami by incorporating suspended bent portions between the base and the set of teeth. The Chikami device is a retainer for maintaining teeth in position whereby moving of the teeth is not desired. MPEP 2143.01(V) states that “If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).” Incorporating bent portions between the base and the set of teeth in Chikami would introduce an element of flexibility that is inapposite to the stated object and intended purpose of the Chikami device, which is to retain teeth.

Likewise, modifying Chikami in the manner suggested by the Office Action would impermissibly change the principle of operation of the Chikami device. MPEP 2143.01(VI) states that "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)." Regarding *In re Ratti*, MPEP 2143.01(VI) explains

The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352.).

(emphasis added). The facts of *In re Ratti* are similar to those presented here. The Chikami retainer requires rigidity to retain the teeth. In contrast, the claimed device demands flexibility to guide the teeth. Thus, as with the primary reference in *In re Ratti*, the suggested modification of Chikami would require a substantial reconstruction and redesign of the elements shown in Chikami as well as a change in the basic principle under which the Chikami construction was designed to operate.

Referring again to Fig. 7, the Office Action states that Chikami elements 3 are shown as extending from the posterior portions indirectly, generally rearwardly and outwardly to the set of teeth via bent portions 2a of wire on each side of the base. Chikami elements 3, however, do not extend from the posterior portions indirectly, generally rearwardly and outwardly relative to the wearer when in situ. As illustrated in Fig. 7, Chikami supporting portions 3 of holding portion 2 extend directly from the base part 1 at the base of the posterior teeth. Claim 24 requires that the arch wire extend from the posterior portions indirectly, generally rearwardly and outwardly relative to the wearer when in situ. Thus, Chikami also does not disclose these features.

Similarly, Chikami would not have suggested these features. The Office Action argues, in the Response to Arguments and elsewhere, that adjusting the Chikami supporting portions 3 to meet the elements of the claims would have been mere design choice, citing MPEP 2144.04 and

*In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). As explained in MPEP 2144.04(VI)(C), however, in *In re Japikse*, claims directed to a position of a starting switch were held unpatentable “because shifting the position of the starting switch would not have modified the operation of the device.” MPEP 2144.04(VI)(C) further instructs that “‘The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device.’ *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).”(emphasis added). For all of the reasons discussed above with respect to the claimed bent portion, adjusting the Chikami supporting portions 3 to meet the elements of the claims, even if technically possible, would modify the operation of the Chikami device. As such, the arch wire extending from the posterior portions indirectly, generally rearwardly and outwardly relative to the wearer when in situ, as recited in claim 24, cannot reasonably be considered a mere design choice.

Fisher and Aegesen do not cure the above-described deficiencies of Chikami.

B. Claim 25

The Office Action concedes that Chikami and Fisher do not disclose a 3-way expansion screw, as recited in claim 25. To cure this deficiency, the Office Action relies on Aegesen arguing that it would have been obvious to combine Chikami, Fisher and Aegesen allegedly so that the base can be expanded as it adjusts to a new position of the teeth. The Applicant respectfully requests reconsideration of this rejection.

Fisher discloses orthodontic appliance 22 including an expansion screw 32 (col. 3, ll. 26-36). Aegesen discloses an appliance with a three-way screw mechanism and an anterior platform, in which the lower teeth are locked into the plate using indentation in the anterior platform to advance the lower jaw (FIG. 2; col. 2, ll. 27-59). One of ordinary skill in the art would not have been motivated to modify Chikami and/or Fisher to include the three part base with the three part expansion mechanism of Aegesen.

As discussed above, Chikami is a retaining device designed to hold the teeth of the patient in a fixed configuration after movement of the teeth into that configuration by way of

orthodontic braces or the like. The primary purpose of the Chikami device is to hold the teeth and to prevent the teeth from movement. It would not have been obvious to a person of ordinary skill in the art to incorporate the features selectively from Aegesen and Fisher, as the expansion screws from those devices are for a completely different mode of treatment than the strict retention for which the Chikami device is intended.

C. Claim 44

Claim 44 recites “wherein at each side posterior portion the arch wire extends within the base to the expansion screw so as to form a closed circuit.” The Office Action argues that it would have been obvious to modify Chikami to include the Fisher expansion screw to “have the arch wire extend to the incorporated expansion screw, forming a closed circuit, as taught by Fisher in order for the expansion screw to exert direct force onto the arch wire.” The Applicant respectfully requests reconsideration of this rejection.

One of ordinary skill in the art would not have been motivated to combine Chikami and Fisher in the manner suggested by the Office Action to render obvious the closed circuit configuration recited in claim 44. For example, the claimed closed circuit allows for an arch wire which is light and flexible for guiding teeth. In contrast, Chikami and Fisher are both directed to retaining teeth, while the Fisher device is even configured around individual teeth. In Fisher, manipulating the expansion screws is likely to cause pain and discomfort. Moreover, the Fisher device does not allow teeth to settle within the arch wire, as does the claimed device. Thus, neither Chikami nor Fisher contemplate the objective of the subject matter of the pending claims. Accordingly, one of ordinary skill in the art would not have considered modifying Chikami to incorporate an expansion screw or to extend the holding portion 2 within the base to the expansion screw so as to form a closed circuit around the arch of teeth “in order for the expansion screw to exert direct force onto the arch wire.”

**III. Conclusion**

For the foregoing reasons, further examination of this application is respectfully requested. The Examiner is invited, after consideration of this response, to contact the undersigned to discuss any issue which would expedite allowance of this application.

The Office is authorized to charge any underpayment or credit any overpayment to  
Deposit Account No. 11-0600.

Respectfully submitted,

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By: /Christopher J. Wheeler/  
Christopher J. Wheeler  
Reg. No. 60,738

KENYON & KENYON LLP  
1500 K Street, N.W.  
Washington, D.C. 20005  
202-220-4200 (phone)  
202-220-4201 (facsimile)